



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,148	09/07/2001	Takeo Yamaguchi	NAII-1-17989	7918
26389	7590	08/23/2005	EXAMINER	
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347			WEINER, LAURA S	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,148

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Laura S. Weiner

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-61 and 63-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 66-71 is/are allowed.
- 6) ☒ Claim(s) 14, 15, 18-26, 29-33, 36-44, 47-61, 64-78 and 81-83 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 27, 28, 34, 35, 45, 46, 63, 79 and 80 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims are have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

2. Claims 14-15, 19, 24, 31, 38, 58 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chowdhury et al. (5,798,180).

Chowdhury et al. teaches in column 2, lines 18-53, an ion-selective membrane comprising a polymer substrate having a porosity, electrical resistance and wettability suitable for use as a battery separator and a polyaromatic ether of the shown formula where A is selected from sulphonic acid or carboxylic acid groups. The substrate membrane may be a wettable cellulose-acetate coated polypropylene having a surface porosity of 45%. Chowdhury et al. teaches in column 3, lines 45-55, that sulphonated poly(2,6-dimethyl-1, 4-phenylene oxide) solution was cast on the substrate membrane, the level of sulphonation providing ion exchange capacity of 1.5-1.9 meq/g.

Since Chowdhury et al. teaches that the sulphonated poly(2,6-dimethyl-1, 4-phenylene oxide) solution was cast on the substrate membrane which has a porosity and is wettable then inherently the pores of the porous substrate would be filled with the

Art Unit: 1745

graft polymer and one end of a molecule of the graft polymer is bound to the surface of the pore must also be obtained.

In addition, the presently claimed property of the pores of the porous substrate would be filled with the graft polymer and one end of a molecule of the graft polymer is bound to the surface of the pore would have obviously have been present once the Chowdhury et al. product is provided. *In re Best*, 195 USPQ 433 (CCPA 1977).

3. Claims 14-15, 18-26, 29-33, 36-44, 47-49, 53-61, 64-65, 72-78, 81-83 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Formato et al. (6,248,469).

Formato et al. teaches a solid polymer electrolyte membrane which include a porous substrate interpenetrated with an ion-conducting material. These membranes are useful for fuel cells. Formato et al. teaches in column 46, claim 1, that the porous substrate comprises a homopolymer or copolymer of a thermoset or thermoplastic aromatic polymer, etc. and the ion-conducting material comprises a homopolymer or copolymer of at least one of sulfonated, phosphonated or carboxylated ion conducting aromatic polymer or a perfluorinated ionomer. Formato et al. teaches in claim 13 that the thermoset or thermoplastic aromatic polymer substrate such as polyimide. Formato et al. teaches in claims 33-36, a fuel cell comprising the composite solid polymer electrolyte membrane in which the fuel cell is a direct methanol fuel cell and has methanol permeation rate.

Since Formato et al. teaches that the porous substrate is interpenetrated with an ion-conducting material then inherently the pores of the porous substrate would be filled with the graft polymer and one end of a molecule of the graft polymer is bound to the surface of the pore must also be obtained.

In addition, the presently claimed property of the pores of the porous substrate would be filled with the graft polymer and one end of a molecule of the graft polymer is bound to the surface of the pore would have obviously have been present once the Formato et al. product is provided. *In re Best*, 195 USPQ 433 (CCPA 1977).

Allowable Subject Matter

4. Claims 16-17, 27-28, 34-35, 45-46, 50-52, 63, 79-80 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

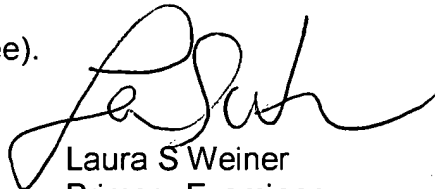
5. Claims 66-71 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S. Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Laura S. Weiner', is positioned above the printed name and title.

Laura S Weiner
Primary Examiner
Art Unit 1745

August 18, 2005